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ABSTRACT

A learning system developed at Valencia Junior College (Florida) would incorporate educational and communication skills needed for the job market and give direction for the best educational path to pursue, using the skills the student already possesses. The learning system developed as an ascending spiral, intended to include a series of aptitude and measurement tests, with various points for entrance and exit. It is multimodal, makes use of audiovisual devices; is student-directed and teacher-assisted; and presents materials in such a way that the skills of reading, writing, and listening are continuously inter-related. The student is permitted to work most of the way through it without the aid of a teacher. It has built-in evaluation tasks, repeating exercises, special learning experiences, and external opportunities for students. The system is expected to undergo annual revision for further development. (CA)

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GETTING IT TOGETHER

A Learning System in Communication

Why a Learning System?

The desire to know how well we're doing has always been a traditional need in the community college movement, but, recently, courses and instructional methods have become the object of more concrete concern throughout the nation. The inadequacy of the junior college system to meet the diverse needs of all of its various students has been demonstrated over and over again, most obviously by its increasing rate of failure to keep in college large segments of students from the minority groups. In particular, the attention of many institutions has been focused on the immediacy of developing curricula suitable for programs that would be comprehensive enough for disadvantaged students who come from a variety of cultural backgrounds and who make up the greatest part of America's "college dropouts." Such students have been handicapped severely because of their inability to communicate with society. This need to build a comprehensive, community-oriented, student-centered program was of vital concern to a developing junior college in Orlando, Florida. Disadvantaged students came to the college from a variety of economic as well as cultural backgrounds: some poor, some nonwhite, some parents, some single, some veterans of the Vietnam war, many embittered by conflict with the "system," and all discouraged by the difficulty which they had encountered while trying to find employment.

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The junior college seemed to be the only door which remained open to them. Having learned that education was needed to qualify for the jobs which they were seeking, they turned to the community college. Once enrolled, however, they again faced a seemingly insurmountable problem. They lacked sufficient skill in communication to cope with even the fundamental reading and writing tasks assigned in the standard curricula. They lacked the ability to listen effectively or to take notes during lectures. And again they were faced with failure! But nowhere was the problem more apparent than in freshman composition courses. Because of their lack of skill in used techniques which have been repeatedly unsuccessful. They were "turned off" by repetition of basic instruction to which they had been exposed during their previous educational experience -- the same dull "learn by rote" material that had so frustrated them. Many students, therefore, left the college. And these students, more than any others, needed to be educated as evidenced by the open-door philosophy of the community college movement.

Many students who entered Valencia Junior College in Orlando had never acquired a real understanding of what was needed to relate successfully to society. Generally, they had been processed in and out of the public schools with little, if any, personal involvement with either materials or instructors. The traditional educational system had exposed them to a set of materials evaluated as adequate for their needs without regard for their interests. As a result, many students had left school with barely enough knowledge to pass the prescribed course and with no desire to investigate further. They had never learned to appreciate the value of communication, the need for the exchange of ideas.

The individual attention span of students is variable, at best, and learning psychologists have observed throughout the past decade that the learning environment must encourage the student to become involved in his own learning processes in order to maintain his interest. The major paths open to junior college students, depending on their talents or capabilities are: 1) to acquire certification with particular skills needed for a specific kind of employment; 2) to obtain an Associate of Arts degree -- also perhaps to obtain employment; and 3) to enroll in a college parallel course. Most vital to their success at any level, however, was the achievement of the necessary level of skills in communication.

What It's For

In view of these circumstances, it became apparent that what was so desperately needed to accommodate the students was a completely new learning system in communication that would incorporate the educational skills needed for qualification in the marketplace, yet would give them direction as to the best educational path to pursue with those skills which they already possessed. It was also evident that a completely new mode of instruction had to be developed to create an improved learning environment in order to capture the students' attention and to keep their interest alive throughout the difficult process of learning to communicate effectively. Another factor which had to be considered was the determination of what skills and knowledge would be attainable by the vast majority of people in these categories.

An experimental program was begun with the intent of developing a learning system which would accommodate these students' most pressing needs. It was hypothesized that the system might make effective use of all available instructional media including texts, films, video tapes, listening tapes,

and transparencies, and that the students themselves were the best source of information pertaining to the usefulness of each element. The program succeeded in getting the students to participate in making contributions to the general outline of their learning programs, such as helping to develop materials for auto-instructional reviews and criticizing content and methodology. No element of the material was isolated. If a student had difficulty in learning to identify his main idea while writing or to recognize the main idea while reading a paragraph, he was encouraged to originate an idea of his own, expand it by using the different modes of expression, and then present the material as a newly created part of the system. If he had trouble reading a paragraph and was fearful of writing one of his own, he was encouraged to record the material which then became a listening exercise. These exercises were then reviewed by his peers. Emphasis was placed on new materials and increasing the students' ability to communicate as the instruction and system developed. The students' learning explorations themselves became the effective communication toward which they were working, for they constantly communicated with each other while they were preparing their materials. The system constantly stressed the interrelation of reading, writing, and listening; frequently, for example, the supporting details used in the development of a paragraph became specific details in a reading assignment or items for recall in a listening tape.

After two semesters of this experimentation, a set of instructional materials began to take shape. The system now included materials for the various communication skills. A good example of the materials used is an autobiographical sketch written by Malcolm X, in which he discussed the need for finding the inner self. This selection was not only read by the students,

a whole set of materials was developed from it. The students were asked to create a three-minute speech relating to any experiences they may have had similar to those of Malcolm X, and they were encouraged to write their responses on transparencies and to develop dramatic film scripts for the film segment which places emphasis on critical writing. All materials were prepared for immediate presentation to an audience of their peers. Every possible means of communication was explored with these sets of materials as the students responded to involvement through participation in their learning processes.

How It's Built

Based on the early success of these preliminary materials, a coauthorship was established with the Educational Testing Service, represented by John Dobbin, and a model for a learning system in communications was created. The learning system, briefly, is a multimodal, student-directed, teacher-assisted system for learning skills for literacy at the junior college level. It is designed primarily for students who have special problems in communication. The system is called "multimodal" since it combines instructional techniques and materials using the widest variety of audio-visual devices available. "Student-directed" means that the materials presented are aimed at the student's individual needs and interests so that he will be "turned on" to a new enthusiasm for learning. The key to development of this model was the strong emphasis placed on the student's development of materials and also the rationale for the inclusion of the materials. This phase of the system actually reversed the traditional direction of instruction, where the instructor is omnipotent, by concentrating on the student's point of view, bringing him to the front of the classroom and placing the instructor in the role of moderator and adviser.

"Teacher-assisted" means that although the student works mostly with semi-programmed material, the instructor must be presented to provide the vital feedback needed to guide the student through his learning process. From its initial phase throughout the entire system, a second set of materials was codeveloped with the students. It was tested under "real life" conditions by a new group of carefully selected students who came from a cross section of the "target group" for whom the system was designed: male and female, normal and handicapped, motivated and not motivated, activist and conformist, expressive and taciturn -- all selected through personal knowledge and study of their records.

These students were paid to participate in an extra-school effort planned for refinement of the system. It is possible that it was the prospect of "being paid to learn" rather than having to pay for the privilege that first turned them on. In any case, once they became involved, their enthusiasm increased with the extent of their involvement. To start with, a set of materials was used which had been measured and assessed by the Educational Testing Service and had been proven to be successful. These materials were tests planned to measure the students' skill levels and accomplishments in reading, writing, and listening. Since they had been built for a different kind of student (average college enrollee, middle-class background, mostly white) in a different school, this set of materials was not relevant to the program being developed but served as a reference point from which to build an "access ladder" to determine points of entrance to the learning system which was designed as an ascending spiral. The access ladder was intended to include a series of aptitude and measurement tests. Critiquing sessions were held regularly to determine at what point the cultural bias of the tests

impaired their validity as measurement devices. New access techniques were originated and validation procedures were applied. Eventually, a new "access ladder" was created using many materials developed by the students.

How It Works

The materials for the learning system in communication are all arranged so that as the student ascends through the learning spiral toward his ultimate goal, the content and assignments become increasingly complex. Although each communication skill, i.e., reading, writing, or listening, is represented in the spiral as a single path of learning, materials are presented in which these skills continuously become interrelated. For example, programmed vocabulary although not unique, is used with a new purpose. In this system, the programmed vocabulary is built into reading tasks designed to create writing tasks which lead the student into listening experiences. The listening experience then returns to the assessment of the student's level in the use of vocabulary. Thus, although the materials used in the new system are not entirely different from those used in other systems, the way in which they are used is unique. Not only are these skills in communication continuously interrelated, but the materials are arranged so as to involve the student in creative activity and to expose him to prepackaged material in reading and vocabulary; at the same time, the system determines whether or not the learning tasks have been effective. It is the interlocking aspect of these functions that is unusual. As the student climbs the increasingly difficult learning spiral, he becomes more and more proficient in the use of all three communication skills.

Another innovative factor in the system is represented by a series of supplemental tasks that are offered to the student at frequent intervals

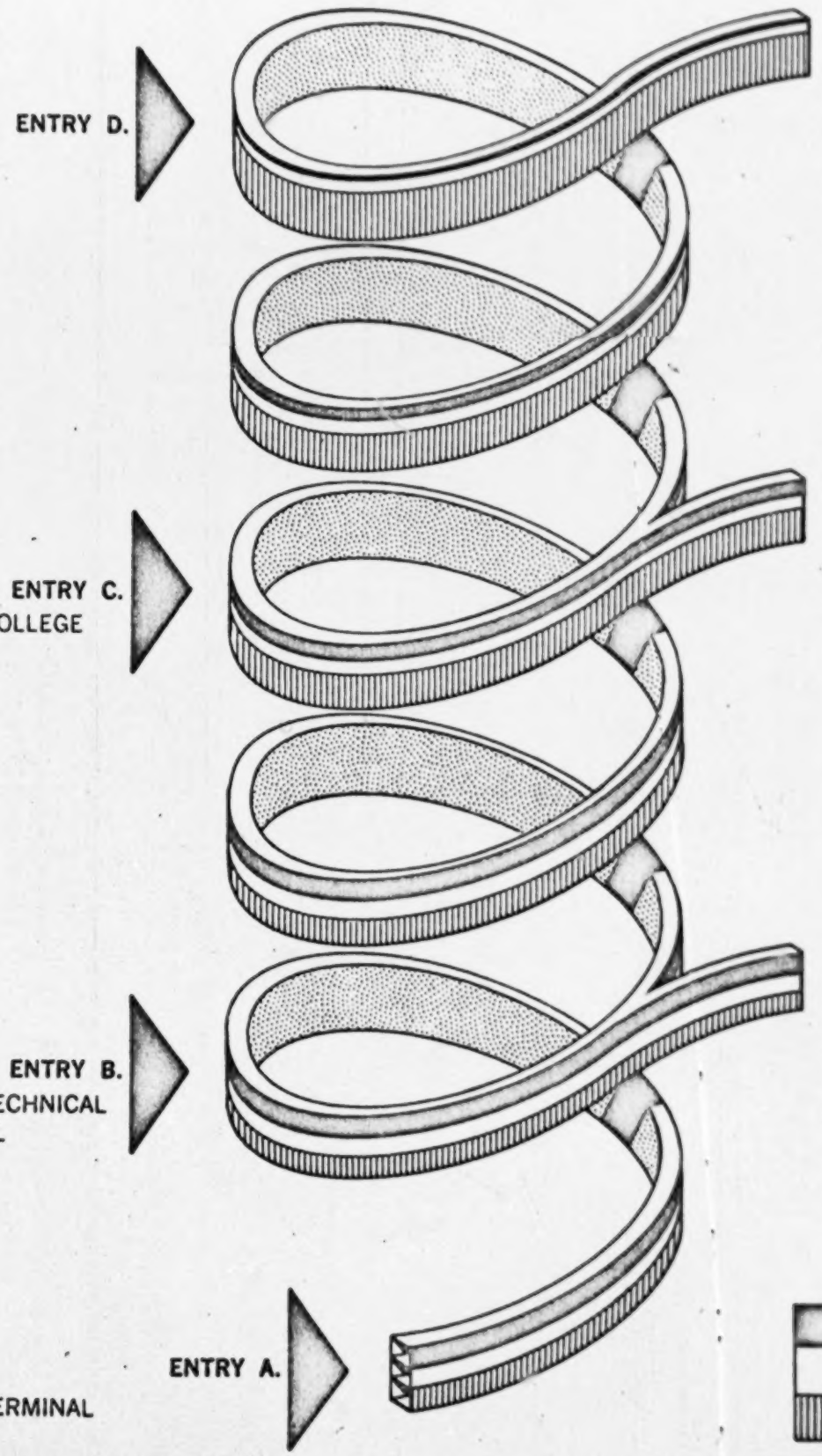
along the spiral. These "extracurricular" exercises are intended to provide additional knowledge and to sustain the student's interest throughout the learning process. They may be used in parallel with the material built into the system, and, if they are used by the student, they succeed in enriching his learning experience as well as expanding his capability.

Also, the learning system is basically "programming" to permit the student to work his way through it virtually without the aid of an instructor, but most of the time it contains built-in assessment of learning to provide the instructor an opportunity to monitor the student's progress. The system permits the instructor to act as overall manager of a group while at the same time leaving him free to act as tutor for the individual student. It uses audio-tapes, video-tapes, and printed modes as well as films and slides for presentation of the material, it is not computer-assisted but has been prepared so that eventual conversion to computer programming can be easily accomplished. Because the system will be composed of removable and replaceable parts, continuous validation procedures will be built into it. Based on adaptation to changing conditions, it will undergo almost annual revision in further development.

During the development of learning materials, the author with ETS concluded that, to be successfully implemented, the overall program should be designed as a single, unitary system of learning. To facilitate demonstration to others, therefore, the author designed a plastic model of the hypothesized system with movable parts to represent the various repeated but replaceable elements within the system (see cover photo). [Deleted]

The system is represented as an ascending spiral (see Figure 1). The spiral is built with "learning paths" in reading, writing, and listening.

LEARNING SYSTEM IN COMMUNICATION – FIGURE 1.
THE BASIC SPIRAL OF LEARNING EXERCISES


ENTRY D.
EXIT 3.
FRESHMAN COMPOSITION DESIGNED TO DEVELOP THE WRITTEN PROFICIENCIES EXPECTED OF A COLLEGE GRADUATE.
ENTRY C.
CHIEFLY FOR COLLEGE PROGRAMS.
EXIT 2.
EXPOSITORY COMMUNICATIONS WITH PRACTICAL EMPHASIS ON THE NEEDS OF A TECHNICAL SOCIETY.
ENTRY B.
CHIEFLY FOR TECHNICAL OR VOCATIONAL PROGRAMS.
EXIT 1.
BASIC COMMUNICATION SKILLS NECESSARY FOR THE MARKET PLACE.
ENTRY A.
CHIEFLY FOR TERMINAL EDUCATION.
LISTENING
READING
WRITING

Access to each path is attained through completion of a test on the access ladder. The learner can enter the spiral at any point depending on his performance in the entry test. Or he can enter at a different place in each of the three communications skills according to his capability in any particular skill. For simplification, only three access or starting points are indicated in Figure 1. Similarly there are only three exit points indicated in the figure where the learner may exit at any point or may leave the program. The major exit points are related to the three categories of learning objectives of the system:

1) Exit 1 is for learners who have achieved sufficient mastery of the communications skills to qualify for the jobs "in the marketplace;"

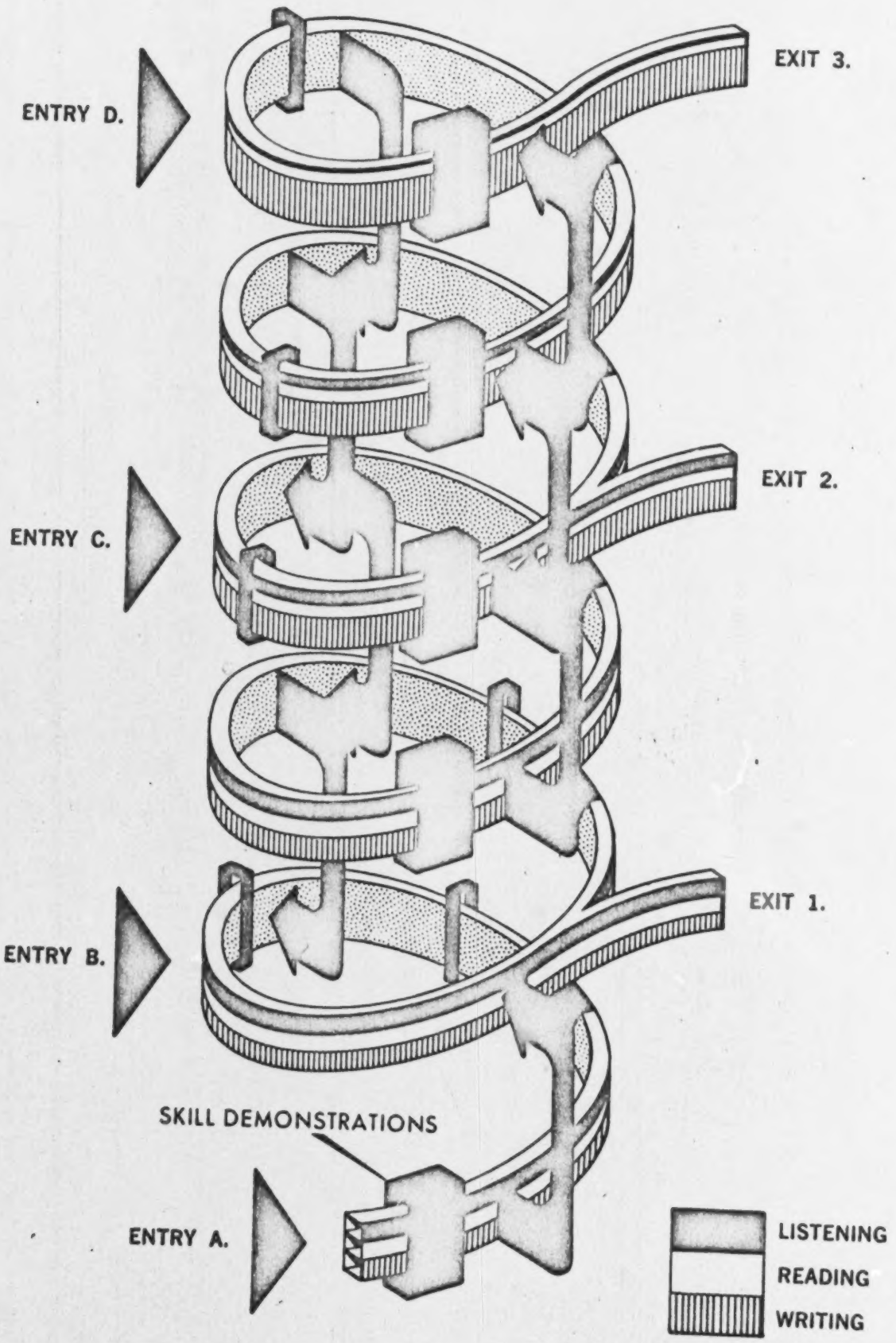
2) Exit 2 is designed for learners who can now qualify for technical or semi-professional jobs by completing a junior college certification program or terminal degree;

3) Exit 3 is open to learners who have attained skills at a level from which they can enter and succeed in a traditional freshman English competition course.

If the student's performance shows that he is capable at any point in the spiral of advancing beyond his current level, he is encouraged to pass through an "ascent" gate and to move along the spiral at an advanced rate, always being free to return through a "descent" gate to a lower loop as needed for "refreshers." He is also free to break away at certain points in the system to pursue a course of special interest to him.

The built-in evaluation tasks are indicated on the spiral in Figure 2 as boxes which are located at intervals. These tasks, however, will be scattered randomly throughout the system to be used wherever the student

LEARNING SYSTEM IN COMMUNICATION – FIGURE 2.
THE BASIC SPIRAL WITH ASCENTS AND DESCENTS ADDED

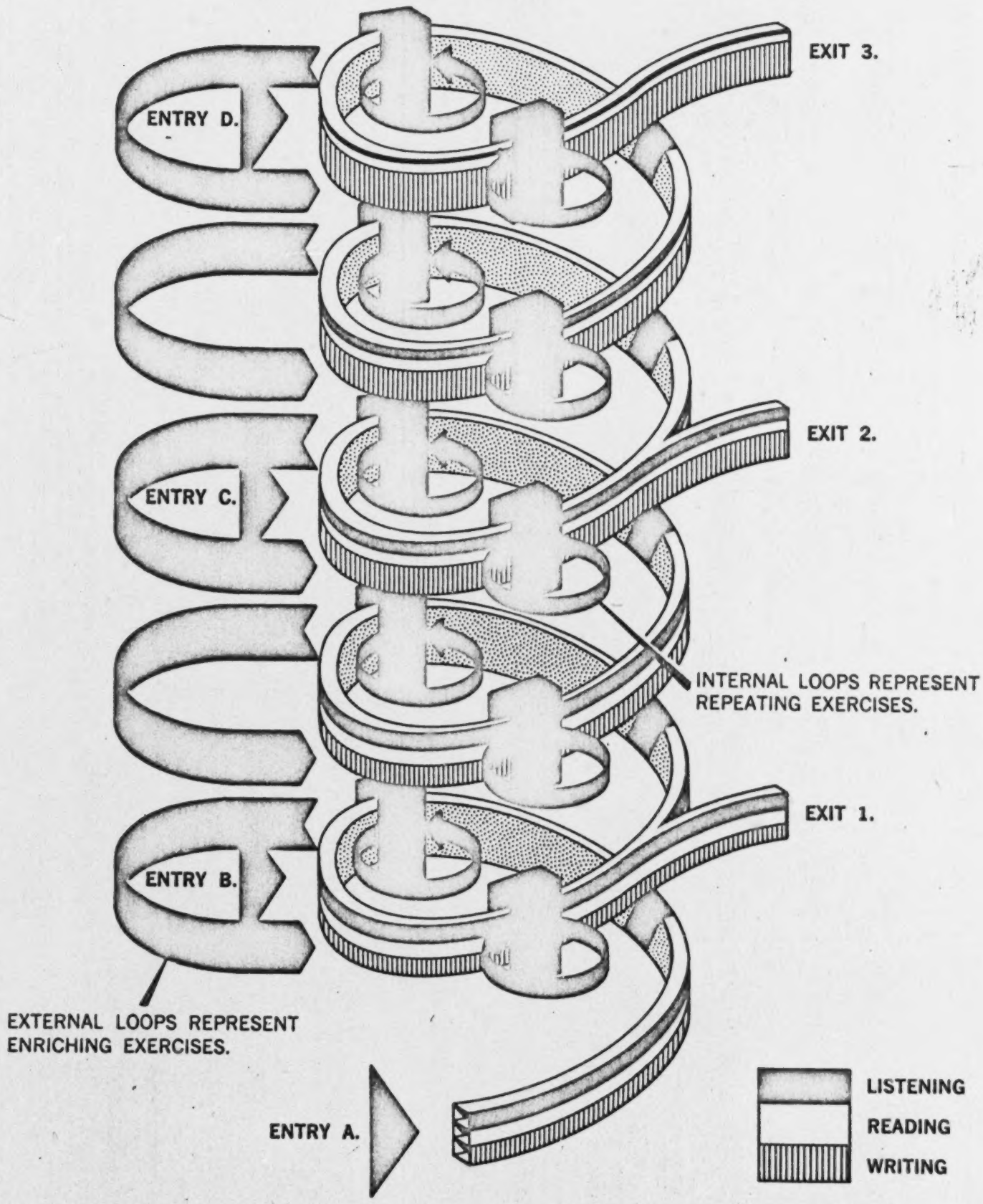


and his instructor need to have some kind of check on his progress -- in some places clustered like standard assessment tests, in other places hidden in the "grass" of the instructional material so that nobody but the writer knows they are there.

The wide, vertical arrows shown in Figure 2 represent avenues along which the learner may ascend to a higher level of learning or descend to review for better understanding at the preceding level. This determination is made either by the student himself if he finds the material too difficult or too simple, or if an evaluation test indicates that he should do so. This procedure is intended to advance the student at a pace with which he is most comfortable, eliminating the possibility of emotional tensions caused by fear of failure, or, on the other hand, boredom caused by too simple a task. For example, if a student has been placed at too high a level on the learning spiral through misinterpretation of his performance on the access ladder, and he finds the work too difficult and he will be guided to the proper level indicated by his capability. Or if he is able to proceed at a faster pace through additional effort, he may advance to the next level through the built-in ascents illustrated by the vertical arrows. The same opportunity exists for those who must descend for various reasons. This determination can also be made by the evaluation tasks built into the system. Either way, misplacement of a student is quickly detected and corrected.

For the learner who finds it necessary to review, "repeating" exercises are provided (see Figure 3 where these exercises are indicated by small curving arrows, called internal loops, inside the spiral). Repeating exercises are comparable to exercises in a programmed textbook to which the learner is directed when he fails to complete a task correctly. The learner

LEARNING SYSTEM IN COMMUNICATION – FIGURE 3.
THE BASIC SPIRAL WITH LEARNING LOOPS ADDED



can repeat these exercises as often as necessary until he has acquired the confidence and skill to advance to the next level. (Note that this loop in the figure starts just after the learner has passed through the box that indicates a test.)

Special learning experiences are built into the program to accommodate skills or interests outside the learning spiral. The learner is directed into these areas on the basis of choice by the student and/or suggestion by his instructor, or by his performance on assessment tasks. For example, the student who is in the writing path of the spiral aimed at entering the two-year junior college course in law enforcement probably will be guided through several such loops that give him instruction and practice in writing, accurately but precisely, the different kinds of reports that policemen are required to write. Entrance to these particular loops will be most often made on the basis of choice by the student and/or suggestion by the instructor rather than by the student's performance on the assessment tasks.

To encourage the student and to recharge his enthusiasm for learning, at intervals opportunities are presented for the student to swing out on his own for a while to explore a path that holds special interest for him. These opportunities are shown in Figure 3 as wide, curving bands outside the spiral on the left and are called "enrichment" exercises. The author discovered that a number of the handicapped learners at this age couldn't write acceptable sentences or paragraphs but were able to write material that sounded like first-rate blank verse when read aloud. These students were encouraged to write the "poetry" and to record it on tape to be played in class. Many kinds of "external loops" of this nature will be found in the system to relate to the various areas of interest shown by the students,

i.e., music and rhythm, special reading material, various writing techniques, listening materials, and others. Students will be helped to build their own enrichment loops in whatever mode seems to them to fit their needs and their skills -- always, of course, sufficiently related to the purpose of the learning spiral to be considered as enrichment of reading, writing, or listening. Certain reading loops will be "canned" in advance to afford reading experiences of the widest variety for those students who have learned to appreciate the joy of reading and who want to be led into additional reading that is appropriate to their personal interests and helpful in developing their skills.

Since these enrichment exercises are intended to add to the learner's experience rather than to hurry him through the system, they can be done in parallel with the student's progress up the learning spiral. They can be started at any time that seems suitable and can be stopped without loss of credit at any time the student loses interest. This experience, however, is likely to increase the student's skill in the related part of the learning spiral, and when he returns to it, his improvement should be noted immediately in the evaluation tasks. He can probably be directed into the next higher level of learning based on his experience in the enrichment exercises. Thus, the learner will be allowed to "shoot ahead" when he is finally "turned on," and not kept plodding when he is ready to sprint. Some of the external loops will be kept for the student's contribution and creativity.

Brancing procedures (used here much in the same way as in programmed instructions) will be used for the development of instructional materials which the students themselves create to build their own skills toward the same goals presented by the learning system.

In this way it is hoped that the student's interest in his learning processes will be aroused. It is assumed that students want to learn; they merely need the confidence to try. And this confidence can be built up quickly if their basic interests are given free play and their inherent creativity is allowed expression. Since the system is based on flexibility to meet these variations in learning capabilities, it follows that constant validation and revision will be required. Therefore, the authors have structured the material to facilitate the implementation of necessary changes. The coauthors are very enthusiastic about the tremendous potential of this new approach to education, especially since the first efforts have met with such eager response by the students for whom it has been designed. Despite this dramatic improvement in educational techniques, further research and development will be needed to produce a failure-proof system. Once completed, however, the new learning system in communication should represent a breakthrough in a critical area of education.